AECOM
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Portland, OR 97201
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503 222 7200 tel
503 222 4292 fax

October 1, 2015

Mike Romero
Oregon Department of Environmental Quality
Northwest Region Office
700 NE Multnomah St., Suite #600
Portland, Oregon

Re: **Source Control Evaluation Addendum**
Phillips 66 Willbridge Terminal
Portland, Oregon

Dear Mr. Romero:

AECOM, on behalf of Phillips 66 Company (P66), is providing the Oregon Department of Environmental Quality (DEQ) this Source Control Evaluation Addendum for the Phillips 66 Willbridge Terminal (Site) located in Portland, Oregon (Figure 1). This addendum follows the ConocoPhillips Portland Terminal Source Control Evaluation Report prepared by Stantec during January 2011. The addendum summarizes additional source control investigation activities which were completed in accordance with the Sediment Sampling Work Plan submitted by AECOM in October 2014.

1.0 SCOPE OF WORK

AECOM collected manhole sediment samples and conducted a camera survey of the storm water system lines draining from the Site into manholes 9 and 11 (MH-9 and MH-11). Both manholes receive storm water from the P66 bulk fuel terminal originating from roof drains on the main terminal warehouse, effluent from storm water separator 001, in addition to storm water flows from BNSF and possible other upgradient areas. The flow from Manholes 9 and 11 then flows to Outfall 19. Both manholes are located on the BNSF property adjacent to the Site. Sampling and inspection activities were conducted under dry weather conditions when no visible storm water was observed entering the catch basins. The scope of work is summarized below:

- Collect sediment samples from MH-9 and MH-11
- Conduct a video survey of the storm water lines connecting to MH-9 and MH-11

2.0 SEDIMENT SAMPLING

On March 19, 2015, AECOM met with Burlington Northern Santa Fe (BNSF) on their property to access manholes MH-9 and MH-11. AECOM opened MH-9, however the material in the manhole was heavily cemented, and no fines were present that could be collected. Upon opening MH-11, AECOM observed a steel structure that resembled the bottom half of a steel drum. The steel structure was fixed into the concrete bottom of the manhole (See Photo 2, Appendix A). It was unclear to the field staff if the structure was part of the original design or a remnant from other construction activities. Unsure of the steel structure's purpose, two sediment samples were collected from MH-11: one from inside the steel structure in the bottom of the manhole (MH-11-DRUM), and one from outside of the steel structure (MH-11-OUT). Because of the manhole depth, samples were collected using stainless steel spoons bent at a 90 degree angle and attached to the end of a 10-foot polyvinyl chloride (PVC) pole. The pole allowed samplers to reach the bottom of the manhole from the ground surface. Both samples were collected using clean stainless steel spoons and which were individually composited by mixing thoroughly in a clean stainless steel bowl. Samples were immediately placed into clean glass jars provided by the laboratory and placed on ice.

Per the Work Plan, the sediment samples were submitted for the analyses listed below:

- Selected priority pollutant metals via Environmental Protection Agency (EPA) Method 6020A
  - Arsenic
  - Barium
  - Cadmium
  - Chromium
  - Copper
  - Lead
  - Silver
  - Zinc
- Polycyclic Aromatic Hydrocarbons (PAHs) via EPA Method 8270D Selected Ion Monitoring (SIM)
- Petroleum Hydrocarbons as gasoline by Method NWTPH-Gx
- Petroleum Hydrocarbons as diesel and heavy oil by Method NWTPH-Dx
- Polychlorinated Biphenyls (PCBs) via EPA Method 8082A

In accordance with DEQ's request, an additional sampling event was conducted to collect sediment samples to analyze for selenium and mercury, which were not listed in the Work Plan and not previously analyzed.

On June 23, 2015, two sediment samples were collected from MH-11. One sample was collected from inside the perimeter of the steel structure in the bottom of MH-11(MH-11-IN), and the other from outside the perimeter of the steel structure (MH-11-OUT). MH-9 was opened and inspected, however a sample was not collected because the manhole did not contain sediment.

Both samples were collected using clean stainless steel spoons and were then individually composited by mixing thoroughly in a clean stainless steel bowl. Samples were immediately placed into clean glass jars provided by the laboratory and placed on ice.

AECOM handled all samples under standard chain-of-custody (COC) procedures. These procedures are detailed in the Work Plan. Copies of the COC forms are provided with the laboratory data package in Appendix B. Analytical support was provided by Test America (TA) of Beaverton, Oregon.

The sediment samples were submitted for the analyses listed below:

- Selected priority pollutant metals via EPA Method 6020A
  - Barium
  - Selenium
- Mercury via EPA Method 7471A

A detailed description of the quality assurance/quality control (QA/QC) process implemented for catch basin sampling was provided in the Data Quality Assurance and Control Plan section of the Work Plan (Section 5). A Data Quality Review Report (DQRR) was completed for the manhole sediment analytical results (Attachment C). The results of this review have been incorporated into the analytical results tables.

3.0 ANALYTICAL RESULTS AND COMPARISON TO SCREENING LEVEL VALUES

Table 1 presents the analytical results from the manhole sediment samples. The results were compared to screening level values (SLVs) provided in the Guidance for Evaluating the Storm water Pathway at Upland Sites (DEQ, 2010), which are based on those included in the Portland Harbor Joint Source Control Strategy (DEQ, 2007). Chemical concentrations in Table 1 are highlighted in yellow where they exceed the SLVs. A summary of SLV exceedances is provided below:

- Mercury was detected above the SLV of 70 micrograms per kilogram (µg/kg) in sample MH-11-IN collected on June 23, 2015 with a concentration of 130 µg/kg.

- Bis(2-Ethylhexyl)phthalate was detected above the SLV of 330 µg/kg in samples MH-11-OUT and MH-11-DRUM collected on March 19, 2015 with concentrations of 980 µg/kg and 820 µg/kg, respectively.

- Di-n-butylphthalate has a method detection limit (MDL) that exceeds the screening value but the samples did not have a detectable concentration.

- Individual PCB aroclors were not detected. Because there were not any detections, Total PCBs were calculated by taking the highest MDL for the individual PCB aroclors (Aroclor 1221). The MDL exceeds the screening value but the samples did not have a detectable concentration.

4.0 VIDEO SURVEY

Video survey activities were conducted on June 23, 2015 to inspect onsite storm water system lines intersecting MH-9 and MH-11 at the Site. AECOM subcontracted Applied Professional Services Incorporated (APS) of North Bend, Washington to perform the video survey of the storm water system lines. In order to assist working around the backflow preventers and gain access to the storm water system lines for camera inspection purposes, Cowlitz Clean Sweep (CCS) of Longview, Washington was subcontracted to conduct the confined space entry inside MH-11. The sections of surveyed pipes are summarized below and the findings are presented in Figure 2. A copy of the video survey is included on a compact disk (CD) in Attachment D. Still images from the video survey are included in the photolog in Attachment A.

4.1 MH-9 to MH-11

APS used their computerized mainline tractor camera system to inspect the entire pipe length. No water was observed in the storm water pipe. The storm water pipe is approximately 8 inches in diameter but the material it is constructed from could not be determined. The pipe appeared to be in good condition.

4.2 MH-9 to Final Box #2

APS used their computerized mainline tractor camera system to inspect the first 197.5 feet of pipe from MH-9.The tractor system was unable to advance beyond 194 feet due to a fine layer of sediment accumulation making it difficult for the system to gain traction. A material transition from clay to concrete was observed at approximately 197.5 feet, making the stopping spot for the tractor system easily identifiable. A push camera system was subsequently utilized to inspect the remaining pipe section between Final Box #2 (located near Storm Water Separator #001) and MH-9. The push camera was inserted through Final Box #2 and advanced toward MH-9 until the pipe material transition from clay to concrete was observed. Standing water was observed in the pipe section near Final Box #2, however was not present in the majority of the pipe. Debris accumulation was present in the 15 foot section immediately downgradient of Final Box #2, but otherwise was minimal for the remainder of the pipe. The storm water pipe is approximately 8 inches in diameter, and appears to be constructed from clay except for a stretch between 197.5 feet to 205' from MH-9 where it is concrete.

Numerous small cracks and fractures, and some large fractures were observed in the clay pipe section between MH-9 and Final Box #2 (See Appendix A, Photos 9 through 14, and Figure 2). Visible signs of

infiltration were observed at approximately 56 feet, and 96.3 feet from MH-9 (See Appendix A, Photos 9 and 10, and Figure 2).

4.3 MH-11 toward Cleanout

APS used their computerized mainline tractor camera system to inspect the first 15.6 feet of pipe from MH-11. The tractor camera system was unable to advance past 15.6 feet because the pipe takes a turn the camera was unable to negotiate. The remaining pipe section between the cleanout and the turn was accessed using a push camera and advancing it through the cleanout located inside the rail car facility on the Site. Debris accumulation and standing water were present throughout the entire pipe section. Visible signs of damage could not be observed due to the amount of debris and water accumulation inside of the pipe. The pipe is approximately 12 inches in diameter and appears to be steel.

4.4 Roof Drain toward Cleanout

APS used their push camera to inspect the storm water system line running from the roof drain downspout on the lube oil facility toward the cleanout at the rail car facility on Site. Access was gained through the downspout inside of the lube facility. Debris accumulation was present throughout the pipe length; however debris increased beyond the lateral tie in, approximately 20 horizontal feet west of the downspout. Heavy debris accumulation and standing water made it impossible to advance the camera past 95 feet. Visible signs of damage could not be observed due to the amount of debris and water accumulation inside of the pipe. The pipe is approximately 12-inches in diameter and appears to be steel.

5.0 Conclusions and Recommendations

The storm water pipes contain a number of cracks and offsets and in select areas, accumulated sediment. AECOM recommends that the 12-inch pipe between MH-11 and the roof drained be cleaned to further evaluate the condition. The accumulation of sediment is currently prohibiting a thorough evaluation of the pipe. Once the sediment is removed from the pipe, the pipe will be re-surveyed with the video equipment and a plan to address the storm water system will be developed.
Based on the video survey of the 8-inch pipe between Final Box #2 and MH-9, a number of cracks, offset joints and areas of water infiltration were observed. At this time, Phillips 66 is evaluating options for a path forward. Once the plan has been developed, Phillips 66 will notify the ODEQ with the plan and schedule.

Sincerely,

Bret Waldron
Project Manager
bret.waldron@aecom.com

Thomas J. Bialobok
Program Manager
thomas.bialobok@aecom.com

cc: Rich Solomon – Phillips 66 Company
Nick Giotti – Phillips 66 Company
Tim Bishop – Chevron EMC

FIGURES

Source: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

200 0 200 400

SCALE IN FEET

AECOM

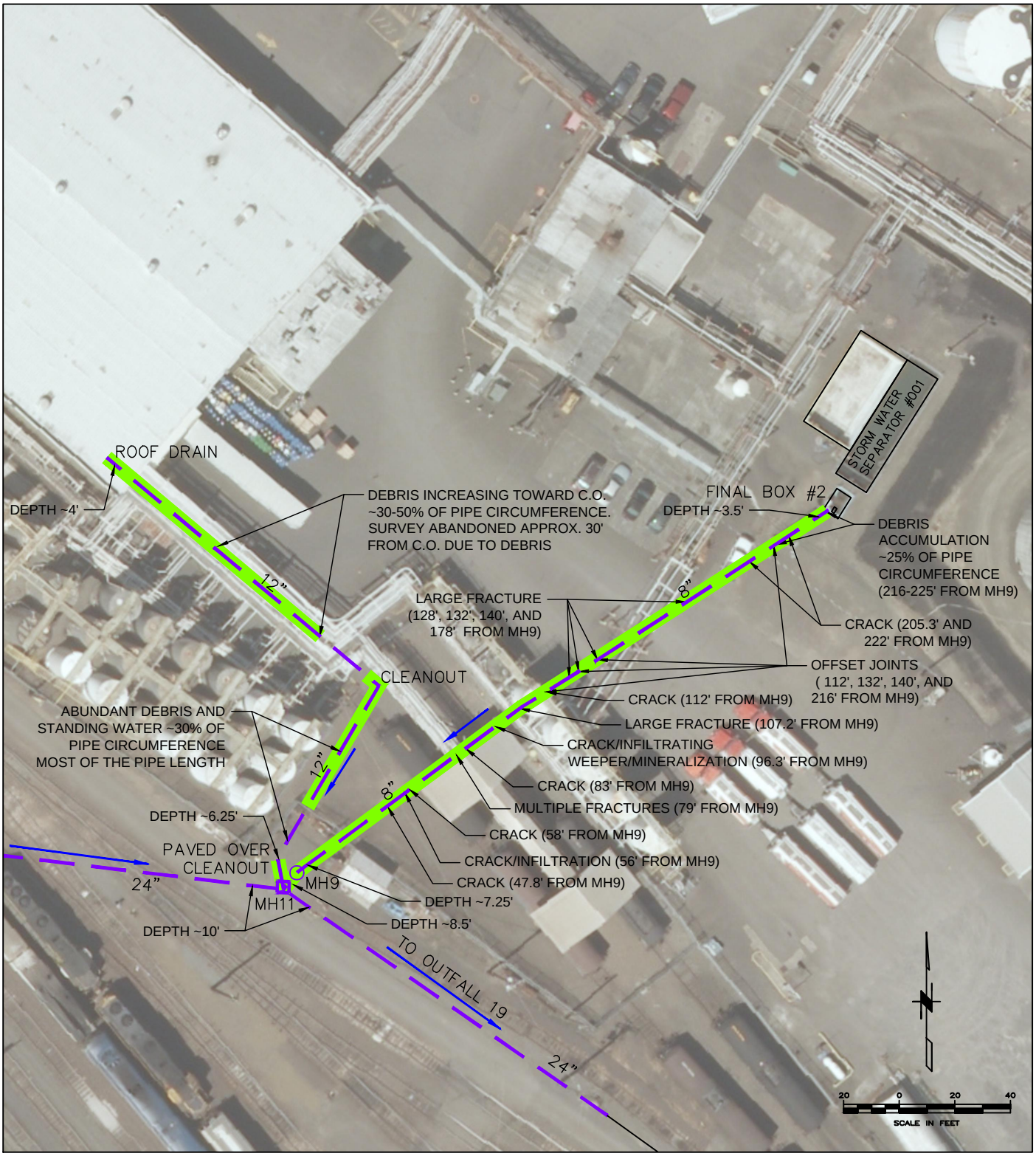
SITE MAP

JULY 2015

PHILLIPS 66
PORTLAND TERMINAL
5528 NW DOANE AVE. PORTLAND, OR 97210

FIGURE 1

S:\public\bergeson\Phillips 66\Fig 1 Site Vicinity.mxd



LEGEND

- STORMWATER LINE
- VIDEO SURVEY
- FLOW DIRECTION

STORMWATER LINE VIDEO SURVEY

AUGUST 2015

PHILLIPS 66
PORTLAND TERMINAL
5528 NW DOANE AVE. PORTLAND, OR 97210

FIGURE 2

C:\Users\Seth_Bergeson\appdata\local\temp\AcPublish_6992\Fig 2 SW Video Survey.dwg Aug 25, 2015 - 1:15pm

TABLE

Table 1. Manhole MH-11 Sediment Analytical Results
P66 Willbridge Terminal

	Screening Value[1]	MH-11-outside structure	MH-11-within structure
Units	**µg/kg**	**µg/kg**	**µg/kg**
Metals/Inorganics			
Antimony	64,000	--	--
Arsenic	7,000	**2,600**	**1,500**
Cadmium	1,000	**140 J**	**100 J**
Chromium, total	111,000	**24,000**	**15,000**
Copper	149,000	**17,000**	**11,000**
Lead	17,000	**16,000**	**11,000**
Manganese	1,100,000	--	--
Mercury	70	--	--
Nickel	48,600	--	--
Selenium	2,000	--	--
Silver	5,000	**24 J**	**23 J**
Zinc	459,000	**65,000**	**40,000**
PCBs Aroclors			
Aroclor 1016	530	**6.1 U**	**5.6 U**
Aroclor 1221	--	**15.0 U**	**14.0 U**
Aroclor 1232	--	**13.0 U**	**12.0 U**
Aroclor 1242	--	**4.0 U**	**3.7 U**
Aroclor 1248	1,500	**5.8 U**	**5.2 U**
Aroclor 1254	300	**4.0 U**	**3.7 U**
Aroclor 1260	200	**5.8 U**	**5.2 U**
Aroclor 1262	--	**--**	**--**
Aroclor 1268	--	**--**	**--**
Total PCBs	0.39	**15.0 U**	**14 U**
Phthalate Esters			
Dimethylphthalate	--	**10 U**	**18 J**
Diethylphthalate	600	**30 U**	**26 U**
Di-n-butylphthalate	60	**100 U**	**88 U**
Butylbenzylphthalate	--	**100 U**	**88 U**
Di-n-octylphthalate	--	**92 J**	**8.8 U**
bis(2-Ethylhexyl)phthalate	330	**980 J**	**820 J**
Polycyclic Aromatic Hydrocarbons			
Naphthalene	561	**4.1 U**	**3.5 U**
2-Methylnaphthalene	200	**2.4 U**	**2.1 U**
Acenaphthylene	200	**5.2 J**	**0.86 U**
Acenaphthene	300	**6.7 U**	**5.4 J**
Fluorene	536	**4.7 J**	**3.7 J**
Phenanthrene	1,170	**65**	**73**
Anthracene	845	**17**	**15**
Fluoranthene	2,230	**130**	**180**
Pyrene	1,520	**140**	**170**
Benzo(a)anthracene	1,050	**60**	**75**
Chrysene	1,290	**99**	**120**
Benzo(b)fluoranthene	--	**120**	**130**
Benzo(k)fluoranthene	13,000	**32**	**41**

Table 1. Manhole MH-11 Sediment Analytical Results
P66 Willbridge Terminal

	Screening Value[1]	MH-11-outside structure	MH-11-within structure
Units	**µg/kg**	**µg/kg**	**µg/kg**
Benzo(a)pyrene	1,450	**77**	**93**
Indeno(1,2,3-cd)pyrene	100	**72**	**78**
Dibenz(a,h)anthracene	1,300	**14**	**17**
Benzo(g,h,i)perylene	300	**75**	**75**
Not on Table 3-1			
TPH Diesel		**130,000**	**21,000 J**
TPH Heavy Oil		**880,000**	**210,000**
TPH-Gx		**3,300**	**1,800 U**

Notes:

J = The associated numerical value is an estimated quantity.

U = The material was analyzed for but was not detected at the displayed Method Detect

Detected concetrations are shown in **bold**.

The tables provided in DEQ Guidance for Evaluating the Stormwater Pathway at Upland Sites (DEQ, 2010), Appendix D were used as templates for presentation of

= Detected value exceeds sceening criteria.

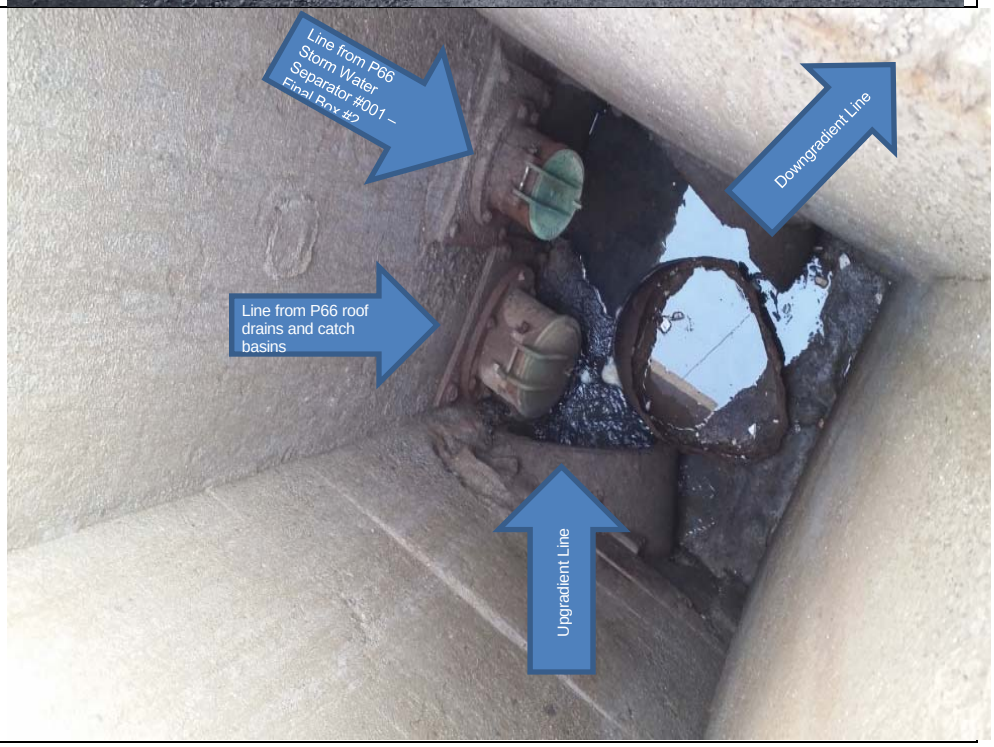
= Analyte not detected, but MDL exceeds screening criteria.

[1] The source of each screening criterion is documented in Table 3.1 of the Portland Harbor Joint Source Control Strategy, which can be viewed at

ATTACHMENT A

Photo Log

Client: Phillips 66	**Project Number: 60285571.5625.03**
Project Name: Portland Willbridge Terminal SCE	**Site Location: Portland, OR**

Photograph No.1 **Photographer:** M. Tauscher **Date:** 3/12/15 **Direction Photo Taken:** South **Comments:** Manhole MH-9 (foreground) and Manhole MH-11 on BNSF Willbridge property. MH-11 under gravel south of MH-9.	
Photograph No.2 **Photographer:** M. Tauscher **Date:** 3/12/15 **Direction Photo Taken:** NA **Comments:** Inside MH-11. Green backflow cap is the line from P66 OWS #001. Other backflow cap is the line from P66 catch basins and warehouse roof drain. Arrows depict direction of storm water flow. Total depth 10 ft. Steel structure at bottom of MH-11.	

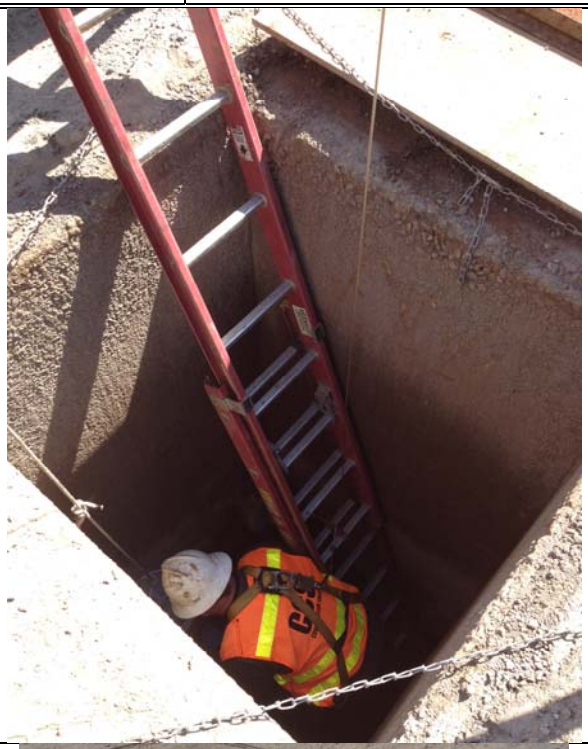
Client: Phillips 66	**Project Number: 60285571.5625.03**
Project Name: Portland Willbridge Terminal SCE	**Site Location: Portland, OR**

Photograph No. 3 **Photographer:** M. Tauscher **Date:** 3/12/15 **Direction Photo Taken:** NA **Comments:** Manhole MH-9 total depth 7 ft. 2 inches. Blue arrow depicts flow direction.	
Photograph No. 4 **Photographer:** M. Tauscher **Date:** 3/12/15 **Direction Photo Taken:** NA **Comments:** Manhole MH-9 outlet.	

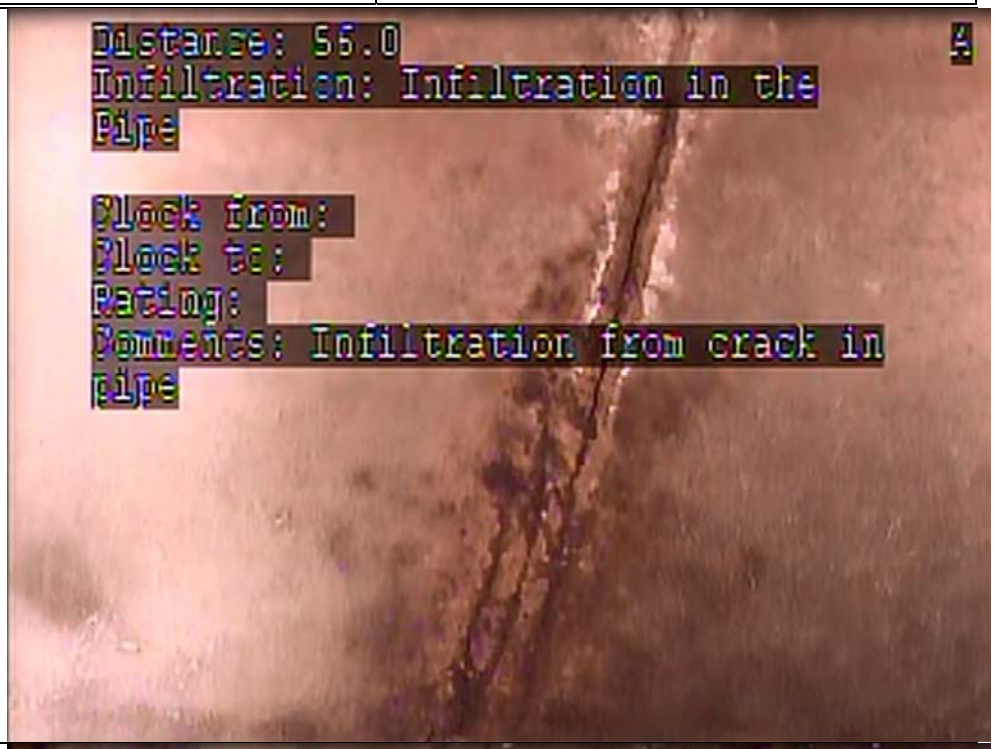
Client: Phillips 66	Project Number: 60285571.5625.03
Project Name: Portland Willbridge Terminal SCE	Site Location: Portland, OR

Photograph No. 5 **Photographer:** M. Tauscher **Date:** 3/12/15 **Direction Photo Taken:** East – Southeast **Comments:** Steel surface plate over Manhole MH-11.	
Photograph No. 6 **Photographer:** M. Tauscher **Date:** 3/12/15 **Direction Photo Taken:** Southwest **Comments:** Second subsurface steel plate over Manhole MH-11	

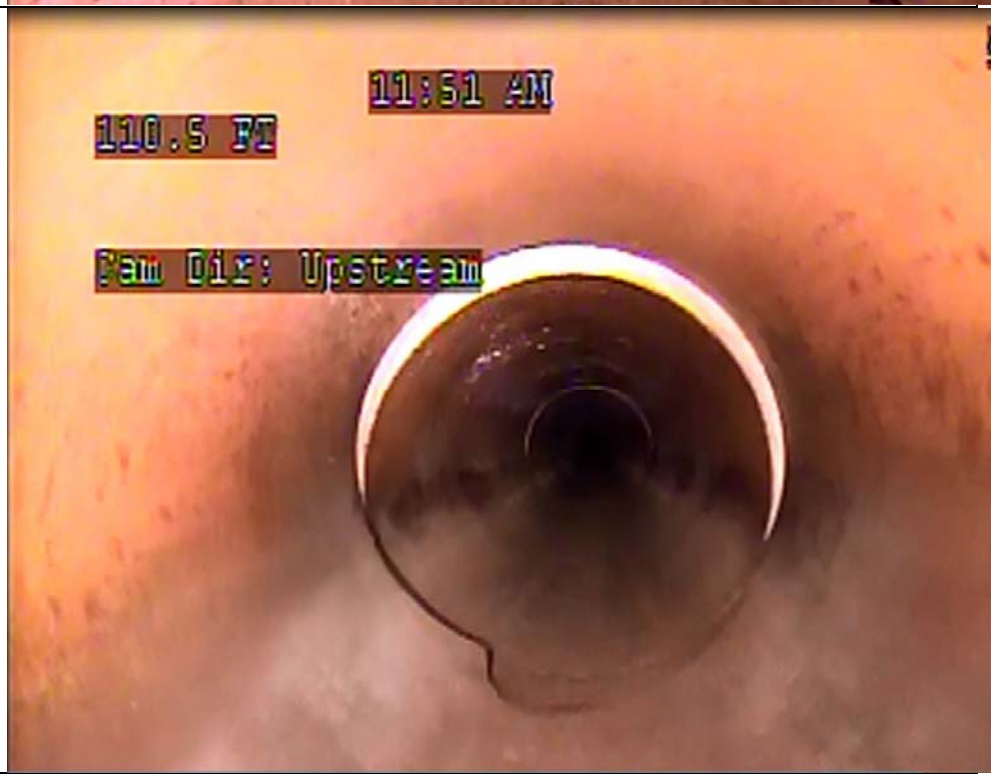
Client: Phillips 66	**Project Number: 60285571.5625.03**
Project Name: Portland Willbridge Terminal SCE	**Site Location: Portland, OR**

Photograph No. 7 **Photographer:** B. Waldron **Date:** 6/23/15 **Direction Photo Taken:** N/A **Comments:** CCS employee assists in collecting soil samples from the bottom of MH-11.	
Photograph No. 8 **Photographer:** B. Waldron **Date:** 6/23/15 **Direction Photo Taken:** West **Comments:** APS preparing the tractor camera system for deployment in MH-9.	

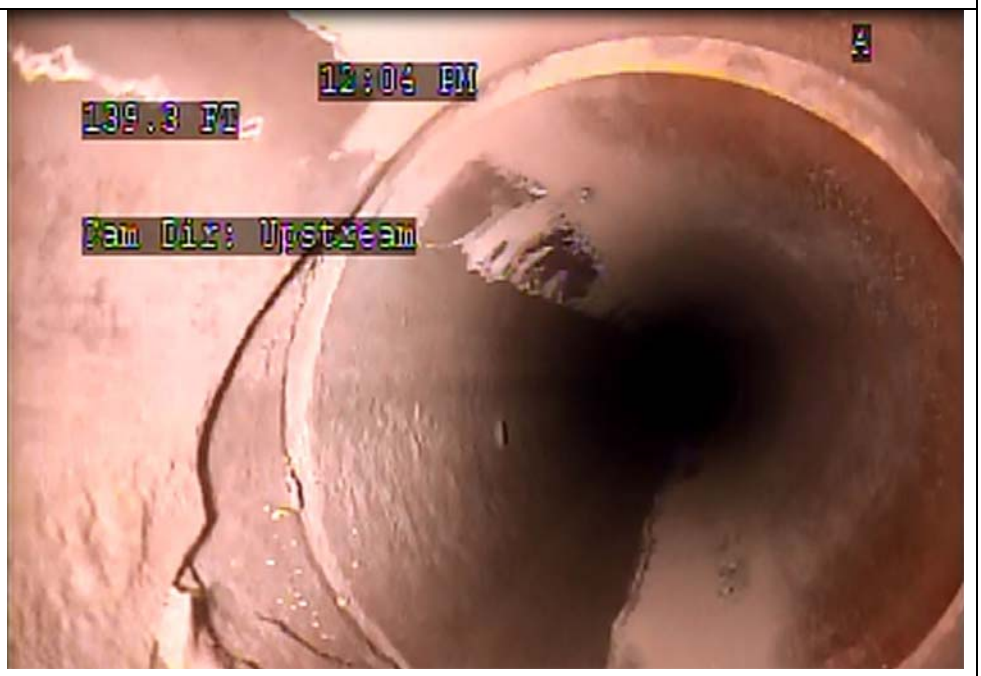
Client: Phillips 66	Project Number: 60285571.5625.03
Project Name: Portland Willbridge Terminal SCE	Site Location: Portland, OR

Photograph No. 9 **Photographer:** APS **Date:** 6/23/15 **Direction Photo Taken:** N/A **Comments:** Crack in the clay pipe between MH9 and Final Box #2 approximately 56 feet upgradient of MH-9. Visible signs of historic infiltration.	
Photograph No. 10 **Photographer:** APS **Date:** 6/23/15 **Direction Photo Taken:** N/A **Comments:** Cracked clay pipe with an active infiltration weeper and mineralization approximately 96 feet upgradient of MH-9 between MH-9 and Final Box #2.	

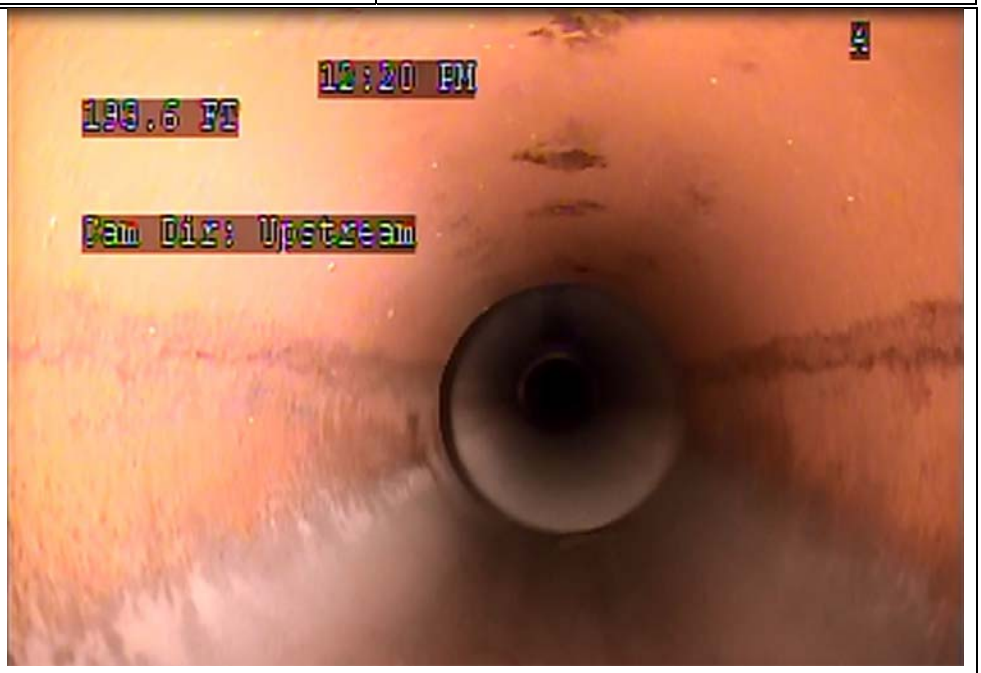
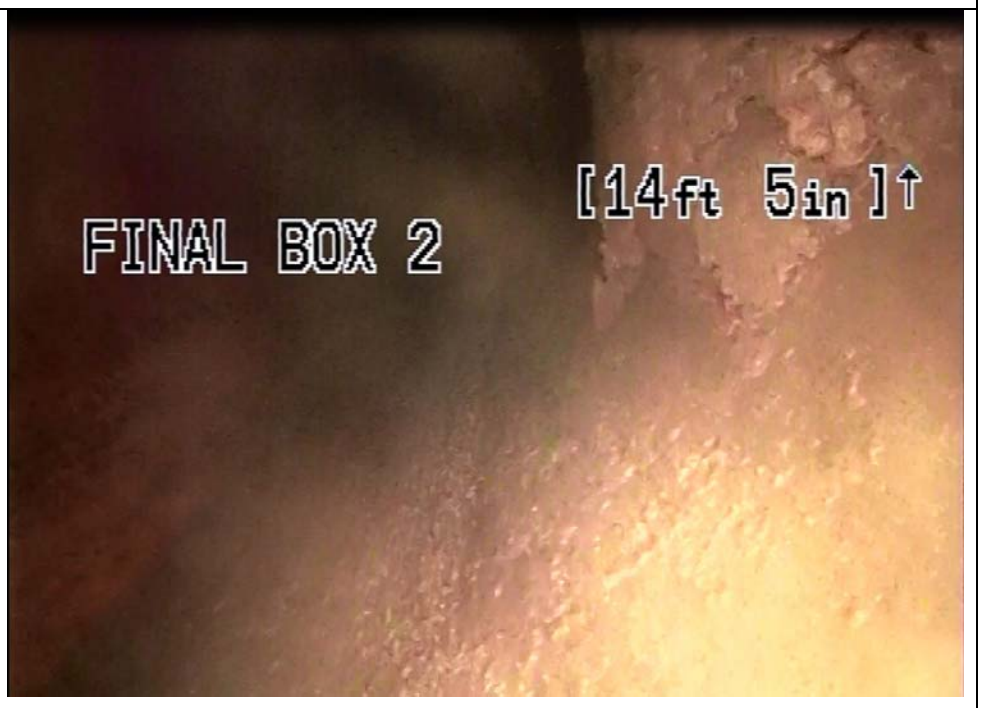
Client: Phillips 66	Project Number: 60285571.5625.03
Project Name: Portland Willbridge Terminal SCE	Site Location: Portland, OR

Photograph No. 11 **Photographer:** APS **Date:** 6/23/15 **Direction Photo Taken:** N/A **Comments:** Part of a large fracture in the clay pipe approximately 107 feet upgradient of MH-9 between MH-9 and Final Box #2.	
Photograph No. 12 **Photographer:** APS **Date:** 6/23/15 **Direction Photo Taken:** Upgradient **Comments:** A large fracture and offset joint in the pipe between MH-9 and Final Box #2, approximately 112' upgradient of MH-9.	

Client: Phillips 66	Project Number: 60285571.5625.03
Project Name: Portland Willbridge Terminal SCE	Site Location: Portland, OR

Photograph No. 13 **Photographer:** APS **Date:** 6/23/15 **Direction Photo Taken:** Upgradient **Comments:** A large fracture and offset joint in the pipe between MH-9 and Final Box #2, approximately 132' upgradient of MH-9.	
Photograph No. 14 **Photographer:** APS **Date:** 6/23/15 **Direction Photo Taken:** Upgradient **Comments:** A large fracture and offset joint in the pipe between MH-9 and Final Box #2, approximately 140' upgradient of MH-9.	

Client: Phillips 66	Project Number: 60285571.5625.03
Project Name: Portland Willbridge Terminal SCE	Site Location: Portland, OR

Photograph No. 15 **Photographer:** APS **Date:** 6/23/15 **Direction Photo Taken:** Upgradient **Comments:** A transition from clay to concrete in the pipe between MH-9 and Final Box #2, approximately 197.5' upgradient of MH-9.	
Photograph No. 16 **Photographer:** APS **Date:** 6/23/15 **Direction Photo Taken:** Downgradient **Comments:** Heavy debris accumulation in the pipe between MH-9 and Final Box #2, approximately 218 feet upgradient of MH-9. Note: photo taken looking downgradient using the push probe camera.	

Client: Phillips 66	Project Number: 60285571.5625.03
Project Name: Portland Willbridge Terminal SCE	Site Location: Portland, OR

Photograph No. 17 **Photographer:** APS **Date:** 6/23/15 **Direction Photo Taken:** Upgradient **Comments:** A large piece of debris in the pipe between MH-11 and the cleanout located in the rail car facility on Site. Photo was taken from the elbow approximately 13.5 feet upgradient from MH-11 where the remote camera could not make the turn. Heavy accumulation noted on the pipe.	
Photograph No. 18 **Photographer:** APS **Date:** 6/23/15 **Direction Photo Taken:** Downgradient **Comments:** Heavy debris accumulation in the pipe runs between the warehouse roof drain and the rail car facility cleanout. Survey was abandoned here because the push camera would not advance any further. Photo taken at 95 feet downgradient of the downspout.	

ATTACHMENT B

Laboratory Reports

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-48187-1
TestAmerica Sample Delivery Group: Willbridge Terminal
Client Project/Site: PGG/SCE
Revision: 1

For:
URS Corporation
111 SW Columbia St
Suite 1500
Portland, Oregon 97201-5850

Attn: Gene Hoilman

Kelly A. Garretts

Authorized for release by:
3/30/2015 2:19:00 PM
Kelly Garretts, Project Manager II
(253)248-4961
kelly.garretts@testamericainc.com

Designee for

Sarah Murphy, Project Manager I
(916)373-5600
sarah.murphy@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Job ID: 580-48187-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative
580-48187-1

Comments
No additional comments.

Receipt
The samples were received on 3/19/2015 2:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.7º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method NWTPH-Dx: In analysis batch 185190, the %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 185099 recovered outside control limits for the following analytes: #2 Diesel fuel (C10-C24) and Motor Oil (>C24-C36). The %recoveries for the LCS and LCSD were within acceptance limits; therefore, the data have been qualified and reported.

Method NWTPH-Dx: In analysis batch 185190, the following sample from preparation batch 185099 contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: MH-11-OUT (580-48187-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method 3550B: In preparation batch 185250, the following sample matrix observations were made for samples MH-11-DRUM (580-48187-2), MH-11-OUT (580-48187-1): the samples contained standing water and some plant/organic matter.

Method 3550B: In preparation batch 185251, the following sample matrix observations were made for samples (580-48187-1 MS), (580-48187-1 MSD), MH-11-DRUM (580-48187-2), MH-11-OUT (580-48187-1): the samples contained standing water and some plant matter.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
Y	The chromatographic response resembles a typical fuel pattern.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	RPD of the LCS and LCSD exceeds the control limits

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample ID: MH-11-OUT
Date Collected: 03/19/15 09:58
Date Received: 03/19/15 14:30

Lab Sample ID: 580-48187-1
Matrix: Solid
Percent Solids: 48.0

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	3.9	J B	20	3.0	ug/Kg	☼	03/26/15 08:08	03/26/15 18:51	1
2-Methylnaphthalene	ND		10	2.4	ug/Kg	☼	03/26/15 08:08	03/26/15 18:51	1
Acenaphthene	6.7	J B	10	1.6	ug/Kg	☼	03/26/15 08:08	03/26/15 18:51	1
Acenaphthylene	5.2	J	10	0.99	ug/Kg	☼	03/26/15 08:08	03/26/15 18:51	1
Anthracene	17		10	1.5	ug/Kg	☼	03/26/15 08:08	03/26/15 18:51	1
Benzo[a]anthracene	60		20	3.0	ug/Kg	☼	03/26/15 08:08	03/26/15 18:51	1
Benzo[a]pyrene	77		10	1.9	ug/Kg	☼	03/26/15 08:08	03/26/15 18:51	1
Benzo[b]fluoranthene	120		20	3.0	ug/Kg	☼	03/26/15 08:08	03/26/15 18:51	1
Benzo[g,h,i]perylene	75		20	3.0	ug/Kg	☼	03/26/15 08:08	03/26/15 18:51	1
Benzo[k]fluoranthene	32		20	3.0	ug/Kg	☼	03/26/15 08:08	03/26/15 18:51	1
Chrysene	99		10	1.8	ug/Kg	☼	03/26/15 08:08	03/26/15 18:51	1
Dibenz(a,h)anthracene	14		10	1.8	ug/Kg	☼	03/26/15 08:08	03/26/15 18:51	1
Fluoranthene	130		10	1.8	ug/Kg	☼	03/26/15 08:08	03/26/15 18:51	1
Fluorene	4.7	J	10	1.3	ug/Kg	☼	03/26/15 08:08	03/26/15 18:51	1
Indeno[1,2,3-cd]pyrene	72		10	1.9	ug/Kg	☼	03/26/15 08:08	03/26/15 18:51	1
Naphthalene	ND		20	4.1	ug/Kg	☼	03/26/15 08:08	03/26/15 18:51	1
Phenanthrene	65		20	3.0	ug/Kg	☼	03/26/15 08:08	03/26/15 18:51	1
Pyrene	140		20	3.0	ug/Kg	☼	03/26/15 08:08	03/26/15 18:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*97*		*42 - 151*	*03/26/15 08:08*	*03/26/15 18:51*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	980	J	1200	100	ug/Kg	☼	03/26/15 08:08	03/26/15 18:25	1
Butyl benzyl phthalate	ND		410	100	ug/Kg	☼	03/26/15 08:08	03/26/15 18:25	1
Diethyl phthalate	ND		410	30	ug/Kg	☼	03/26/15 08:08	03/26/15 18:25	1
Dimethyl phthalate	ND		200	10	ug/Kg	☼	03/26/15 08:08	03/26/15 18:25	1
Di-n-butyl phthalate	ND		1000	100	ug/Kg	☼	03/26/15 08:08	03/26/15 18:25	1
Di-n-octyl phthalate	92	J	1000	10	ug/Kg	☼	03/26/15 08:08	03/26/15 18:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*82*		*42 - 140*	*03/26/15 08:08*	*03/26/15 18:25*	*1*
2-Fluorophenol (Surr)	*87*		*36 - 145*	*03/26/15 08:08*	*03/26/15 18:25*	*1*
Nitrobenzene-d5 (Surr)	*90*		*38 - 141*	*03/26/15 08:08*	*03/26/15 18:25*	*1*
Phenol-d5 (Surr)	*87*		*38 - 149*	*03/26/15 08:08*	*03/26/15 18:25*	*1*
Terphenyl-d14 (Surr)	*95*		*42 - 151*	*03/26/15 08:08*	*03/26/15 18:25*	*1*
2,4,6-Tribromophenol (Surr)	*89*		*28 - 143*	*03/26/15 08:08*	*03/26/15 18:25*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	3.3	J B	8.1	1.0	mg/Kg	☼	03/23/15 17:31	03/24/15 07:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*50 - 150*	*03/23/15 17:31*	*03/24/15 07:13*	*1*
Trifluorotoluene (Surr)	*70*		*50 - 150*	*03/23/15 17:31*	*03/24/15 07:13*	*1*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.019	0.0061	mg/Kg	☼	03/26/15 08:15	03/26/15 18:18	1
PCB-1221	ND		0.021	0.015	mg/Kg	☼	03/26/15 08:15	03/26/15 18:18	1

Client: URS Corporation
Project/Site: PGG/SCE

TestAmerica Job ID: 580-48187-1
SDG: Willbridge Terminal

Client Sample ID: MH-11-OUT
Date Collected: 03/19/15 09:58
Date Received: 03/19/15 14:30

Lab Sample ID: 580-48187-1
Matrix: Solid
Percent Solids: 48.0

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1232	ND		0.021	0.013	mg/Kg	☼	03/26/15 08:15	03/26/15 18:18	1
PCB-1242	ND		0.019	0.0040	mg/Kg	☼	03/26/15 08:15	03/26/15 18:18	1
PCB-1248	ND		0.019	0.0058	mg/Kg	☼	03/26/15 08:15	03/26/15 18:18	1
PCB-1254	ND		0.019	0.0040	mg/Kg	☼	03/26/15 08:15	03/26/15 18:18	1
PCB-1260	ND		0.019	0.0058	mg/Kg	☼	03/26/15 08:15	03/26/15 18:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*81*		*50 - 140*	*03/26/15 08:15*	*03/26/15 18:18*	*1*
Tetrachloro-m-xylene	*82*		*45 - 135*	*03/26/15 08:15*	*03/26/15 18:18*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**130**	**Y**	51	7.4	mg/Kg	☼	03/24/15 13:28	03/25/15 18:29	1
Motor Oil (>C24-C36)	**880**	**Y**	100	19	mg/Kg	☼	03/24/15 13:28	03/25/15 18:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*87*		*50 - 150*	*03/24/15 13:28*	*03/25/15 18:29*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**2.6**		0.43	0.15	mg/Kg	☼	03/23/15 18:21	03/24/15 16:32	5
Barium	**96**		0.43	0.067	mg/Kg	☼	03/23/15 18:21	03/24/15 16:32	5
Cadmium	**0.14**	**J**	0.17	0.016	mg/Kg	☼	03/23/15 18:21	03/24/15 16:32	5
Chromium	**24**		0.43	0.054	mg/Kg	☼	03/23/15 18:21	03/24/15 16:32	5
Copper	**17**		0.34	0.084	mg/Kg	☼	03/23/15 18:21	03/24/15 16:32	5
Lead	**16**		0.43	0.041	mg/Kg	☼	03/23/15 18:21	03/24/15 16:32	5
Silver	**0.024**	**J**	0.17	0.010	mg/Kg	☼	03/23/15 18:21	03/24/15 16:32	5
Zinc	**65**		4.3	0.96	mg/Kg	☼	03/23/15 18:21	03/24/15 16:32	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**48**		0.10		%			03/24/15 08:09	1
Percent Moisture	**52**		0.10		%			03/24/15 08:09	1

Client Sample ID: MH-11-DRUM
Date Collected: 03/19/15 10:23
Date Received: 03/19/15 14:30

Lab Sample ID: 580-48187-2
Matrix: Solid
Percent Solids: 53.4

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		18	2.6	ug/Kg	☼	03/26/15 08:08	03/26/15 19:13	1
2-Methylnaphthalene	ND		8.8	2.1	ug/Kg	☼	03/26/15 08:08	03/26/15 19:13	1
Acenaphthene	**5.4**	**J B**	8.8	1.4	ug/Kg	☼	03/26/15 08:08	03/26/15 19:13	1
Acenaphthylene	ND		8.8	0.86	ug/Kg	☼	03/26/15 08:08	03/26/15 19:13	1
Anthracene	**15**		8.8	1.3	ug/Kg	☼	03/26/15 08:08	03/26/15 19:13	1
Benzo[a]anthracene	**75**		18	2.6	ug/Kg	☼	03/26/15 08:08	03/26/15 19:13	1
Benzo[a]pyrene	**93**		8.8	1.6	ug/Kg	☼	03/26/15 08:08	03/26/15 19:13	1
Benzo[b]fluoranthene	**130**		18	2.6	ug/Kg	☼	03/26/15 08:08	03/26/15 19:13	1
Benzo[g,h,i]perylene	**75**		18	2.6	ug/Kg	☼	03/26/15 08:08	03/26/15 19:13	1
Benzo[k]fluoranthene	**41**		18	2.6	ug/Kg	☼	03/26/15 08:08	03/26/15 19:13	1
Chrysene	**120**		8.8	1.6	ug/Kg	☼	03/26/15 08:08	03/26/15 19:13	1
Dibenz(a,h)anthracene	**17**		8.8	1.6	ug/Kg	☼	03/26/15 08:08	03/26/15 19:13	1
Fluoranthene	**180**		8.8	1.5	ug/Kg	☼	03/26/15 08:08	03/26/15 19:13	1
Fluorene	**3.7**	**J**	8.8	1.1	ug/Kg	☼	03/26/15 08:08	03/26/15 19:13	1
Indeno[1,2,3-cd]pyrene	**78**		8.8	1.6	ug/Kg	☼	03/26/15 08:08	03/26/15 19:13	1
Naphthalene	ND		18	3.5	ug/Kg	☼	03/26/15 08:08	03/26/15 19:13	1
Phenanthrene	**73**		18	2.6	ug/Kg	☼	03/26/15 08:08	03/26/15 19:13	1
Pyrene	**170**		18	2.6	ug/Kg	☼	03/26/15 08:08	03/26/15 19:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*94*		*42 - 151*	*03/26/15 08:08*	*03/26/15 19:13*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	**820**	**J**	1100	88	ug/Kg	☼	03/26/15 08:08	03/26/15 17:35	1
Butyl benzyl phthalate	ND		350	88	ug/Kg	☼	03/26/15 08:08	03/26/15 17:35	1
Diethyl phthalate	ND		350	26	ug/Kg	☼	03/26/15 08:08	03/26/15 17:35	1
Dimethyl phthalate	**18**	**J**	180	8.8	ug/Kg	☼	03/26/15 08:08	03/26/15 17:35	1
Di-n-butyl phthalate	ND		880	88	ug/Kg	☼	03/26/15 08:08	03/26/15 17:35	1
Di-n-octyl phthalate	ND		880	8.8	ug/Kg	☼	03/26/15 08:08	03/26/15 17:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*83*		*42 - 140*	*03/26/15 08:08*	*03/26/15 17:35*	*1*
2-Fluorophenol (Surr)	*89*		*36 - 145*	*03/26/15 08:08*	*03/26/15 17:35*	*1*
Nitrobenzene-d5 (Surr)	*85*		*38 - 141*	*03/26/15 08:08*	*03/26/15 17:35*	*1*
Phenol-d5 (Surr)	*89*		*38 - 149*	*03/26/15 08:08*	*03/26/15 17:35*	*1*
Terphenyl-d14 (Surr)	*94*		*42 - 151*	*03/26/15 08:08*	*03/26/15 17:35*	*1*
2,4,6-Tribromophenol (Surr)	*80*		*28 - 143*	*03/26/15 08:08*	*03/26/15 17:35*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**1.8**	**J B**	7.4	0.92	mg/Kg	☼	03/23/15 17:31	03/24/15 07:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*50 - 150*	*03/23/15 17:31*	*03/24/15 07:47*	*1*
Trifluorotoluene (Surr)	*75*		*50 - 150*	*03/23/15 17:31*	*03/24/15 07:47*	*1*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.017	0.0056	mg/Kg	☼	03/26/15 08:15	03/26/15 19:08	1
PCB-1221	ND		0.019	0.014	mg/Kg	☼	03/26/15 08:15	03/26/15 19:08	1

Client Sample ID: MH-11-DRUM
Date Collected: 03/19/15 10:23
Date Received: 03/19/15 14:30

Lab Sample ID: 580-48187-2
Matrix: Solid
Percent Solids: 53.4

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1232	ND		0.019	0.012	mg/Kg	☼	03/26/15 08:15	03/26/15 19:08	1
PCB-1242	ND		0.017	0.0037	mg/Kg	☼	03/26/15 08:15	03/26/15 19:08	1
PCB-1248	ND		0.017	0.0052	mg/Kg	☼	03/26/15 08:15	03/26/15 19:08	1
PCB-1254	ND		0.017	0.0037	mg/Kg	☼	03/26/15 08:15	03/26/15 19:08	1
PCB-1260	ND		0.017	0.0052	mg/Kg	☼	03/26/15 08:15	03/26/15 19:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*82*		*50 - 140*	*03/26/15 08:15*	*03/26/15 19:08*	*1*
Tetrachloro-m-xylene	*63*		*45 - 135*	*03/26/15 08:15*	*03/26/15 19:08*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**21**	**J**	43	6.2	mg/Kg	☼	03/24/15 13:28	03/25/15 19:05	1
Motor Oil (>C24-C36)	**210**	**Y**	87	16	mg/Kg	☼	03/24/15 13:28	03/25/15 19:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*76*		*50 - 150*	*03/24/15 13:28*	*03/25/15 19:05*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**1.5**		0.36	0.13	mg/Kg	☼	03/23/15 18:21	03/24/15 16:36	5
Barium	**75**		0.36	0.056	mg/Kg	☼	03/23/15 18:21	03/24/15 16:36	5
Cadmium	**0.10**	**J**	0.14	0.014	mg/Kg	☼	03/23/15 18:21	03/24/15 16:36	5
Chromium	**15**		0.36	0.046	mg/Kg	☼	03/23/15 18:21	03/24/15 16:36	5
Copper	**11**		0.29	0.071	mg/Kg	☼	03/23/15 18:21	03/24/15 16:36	5
Lead	**11**		0.36	0.035	mg/Kg	☼	03/23/15 18:21	03/24/15 16:36	5
Silver	**0.023**	**J**	0.14	0.0087	mg/Kg	☼	03/23/15 18:21	03/24/15 16:36	5
Zinc	**40**		3.6	0.81	mg/Kg	☼	03/23/15 18:21	03/24/15 16:36	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**53**		0.10		%			03/24/15 08:09	1
Percent Moisture	**47**		0.10		%			03/24/15 08:09	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-185250/1-A
Matrix: Solid
Analysis Batch: 185300

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 185250

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		600	50	ug/Kg		03/26/15 08:08	03/26/15 15:54	1
Butyl benzyl phthalate	ND		200	50	ug/Kg		03/26/15 08:08	03/26/15 15:54	1
Diethyl phthalate	43.2	J	200	15	ug/Kg		03/26/15 08:08	03/26/15 15:54	1
Dimethyl phthalate	ND		100	5.0	ug/Kg		03/26/15 08:08	03/26/15 15:54	1
Di-n-butyl phthalate	ND		500	50	ug/Kg		03/26/15 08:08	03/26/15 15:54	1
Di-n-octyl phthalate	ND		500	5.0	ug/Kg		03/26/15 08:08	03/26/15 15:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*81*		*42 - 140*	*03/26/15 08:08*	*03/26/15 15:54*	*1*
2-Fluorophenol (Surr)	*83*		*36 - 145*	*03/26/15 08:08*	*03/26/15 15:54*	*1*
Nitrobenzene-d5 (Surr)	*87*		*38 - 141*	*03/26/15 08:08*	*03/26/15 15:54*	*1*
Phenol-d5 (Surr)	*83*		*38 - 149*	*03/26/15 08:08*	*03/26/15 15:54*	*1*
Terphenyl-d14 (Surr)	*89*		*42 - 151*	*03/26/15 08:08*	*03/26/15 15:54*	*1*
2,4,6-Tribromophenol (Surr)	*70*		*28 - 143*	*03/26/15 08:08*	*03/26/15 15:54*	*1*

Lab Sample ID: LCS 580-185250/2-A
Matrix: Solid
Analysis Batch: 185300

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 185250

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bis(2-ethylhexyl) phthalate	1000	1090		ug/Kg		109	62 - 144
Butyl benzyl phthalate	1000	1070		ug/Kg		107	69 - 142
Diethyl phthalate	1000	911		ug/Kg		91	73 - 116
Dimethyl phthalate	1000	908		ug/Kg		91	78 - 117
Di-n-butyl phthalate	1000	1080		ug/Kg		108	66 - 140
Di-n-octyl phthalate	1000	1040		ug/Kg		104	65 - 141

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*89*		*42 - 140*
2-Fluorophenol (Surr)	*91*		*36 - 145*
Nitrobenzene-d5 (Surr)	*96*		*38 - 141*
Phenol-d5 (Surr)	*94*		*38 - 149*
Terphenyl-d14 (Surr)	*99*		*42 - 151*
2,4,6-Tribromophenol (Surr)	*96*		*28 - 143*

Lab Sample ID: LCSD 580-185250/3-A
Matrix: Solid
Analysis Batch: 185300

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 185250

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bis(2-ethylhexyl) phthalate	1000	1090		ug/Kg		109	62 - 144	0	30
Butyl benzyl phthalate	1000	1060		ug/Kg		106	69 - 142	1	30
Diethyl phthalate	1000	914		ug/Kg		91	73 - 116	0	26
Dimethyl phthalate	1000	926		ug/Kg		93	78 - 117	2	30
Di-n-butyl phthalate	1000	1070		ug/Kg		107	66 - 140	0	30
Di-n-octyl phthalate	1000	1040		ug/Kg		104	65 - 141	0	30

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-185250/3-A
Matrix: Solid
Analysis Batch: 185300

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 185250

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*85*		*42 - 140*
2-Fluorophenol (Surr)	*90*		*36 - 145*
Nitrobenzene-d5 (Surr)	*91*		*38 - 141*
Phenol-d5 (Surr)	*90*		*38 - 149*
Terphenyl-d14 (Surr)	*97*		*42 - 151*
2,4,6-Tribromophenol (Surr)	*94*		*28 - 143*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-185250/1-A
Matrix: Solid
Analysis Batch: 185261

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 185250

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	1.75	J	10	1.5	ug/Kg		03/26/15 08:08	03/26/15 17:45	1
2-Methylnaphthalene	2.05	J	5.0	1.2	ug/Kg		03/26/15 08:08	03/26/15 17:45	1
Acenaphthene	1.63	J	5.0	0.77	ug/Kg		03/26/15 08:08	03/26/15 17:45	1
Acenaphthylene	ND		5.0	0.49	ug/Kg		03/26/15 08:08	03/26/15 17:45	1
Anthracene	ND		5.0	0.74	ug/Kg		03/26/15 08:08	03/26/15 17:45	1
Benzo[a]anthracene	ND		10	1.5	ug/Kg		03/26/15 08:08	03/26/15 17:45	1
Benzo[a]pyrene	ND		5.0	0.93	ug/Kg		03/26/15 08:08	03/26/15 17:45	1
Benzo[b]fluoranthene	ND		10	1.5	ug/Kg		03/26/15 08:08	03/26/15 17:45	1
Benzo[g,h,i]perylene	ND		10	1.5	ug/Kg		03/26/15 08:08	03/26/15 17:45	1
Benzo[k]fluoranthene	ND		10	1.5	ug/Kg		03/26/15 08:08	03/26/15 17:45	1
Chrysene	ND		5.0	0.89	ug/Kg		03/26/15 08:08	03/26/15 17:45	1
Dibenz(a,h)anthracene	ND		5.0	0.90	ug/Kg		03/26/15 08:08	03/26/15 17:45	1
Fluoranthene	ND		5.0	0.87	ug/Kg		03/26/15 08:08	03/26/15 17:45	1
Fluorene	ND		5.0	0.63	ug/Kg		03/26/15 08:08	03/26/15 17:45	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.92	ug/Kg		03/26/15 08:08	03/26/15 17:45	1
Naphthalene	ND		10	2.0	ug/Kg		03/26/15 08:08	03/26/15 17:45	1
Phenanthrene	ND		10	1.5	ug/Kg		03/26/15 08:08	03/26/15 17:45	1
Pyrene	ND		10	1.5	ug/Kg		03/26/15 08:08	03/26/15 17:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*98*		*42 - 151*	*03/26/15 08:08*	*03/26/15 17:45*	*1*

Lab Sample ID: LCS 580-185250/2-A
Matrix: Solid
Analysis Batch: 185261

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 185250

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1-Methylnaphthalene	1000	999		ug/Kg		100	62 - 118
2-Methylnaphthalene	1000	943		ug/Kg		94	64 - 119
Acenaphthene	1000	1100		ug/Kg		110	68 - 116
Acenaphthylene	1000	1030		ug/Kg		103	68 - 120
Anthracene	1000	1130		ug/Kg		113	73 - 116
Benzo[a]anthracene	1000	872		ug/Kg		87	76 - 119

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-185250/2-A
Matrix: Solid
Analysis Batch: 185261

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 185250

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzo[a]pyrene			1000	859		ug/Kg		86	72 - 117		
Benzo[b]fluoranthene			1000	893		ug/Kg		89	63 - 132		
Benzo[g,h,i]perylene			1000	852		ug/Kg		85	55 - 139		
Benzo[k]fluoranthene			1000	769		ug/Kg		77	63 - 119		
Chrysene			1000	964		ug/Kg		96	75 - 114		
Dibenz(a,h)anthracene			1000	905		ug/Kg		91	56 - 134		
Fluoranthene			1000	979		ug/Kg		98	73 - 125		
Fluorene			1000	1030		ug/Kg		103	70 - 121		
Indeno[1,2,3-cd]pyrene			1000	797		ug/Kg		80	56 - 127		
Naphthalene			1000	947		ug/Kg		95	62 - 112		
Phenanthrene			1000	931		ug/Kg		93	73 - 106		
Pyrene			1000	1020		ug/Kg		102	70 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*96*		*42 - 151*

Lab Sample ID: LCSD 580-185250/3-A
Matrix: Solid
Analysis Batch: 185261

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 185250

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1-Methylnaphthalene			1000	978		ug/Kg		98	62 - 118	2	30
2-Methylnaphthalene			1000	909		ug/Kg		91	64 - 119	4	27
Acenaphthene			1000	1080		ug/Kg		108	68 - 116	2	27
Acenaphthylene			1000	1010		ug/Kg		101	68 - 120	2	28
Anthracene			1000	1080		ug/Kg		108	73 - 116	5	27
Benzo[a]anthracene			1000	845		ug/Kg		84	76 - 119	3	27
Benzo[a]pyrene			1000	843		ug/Kg		84	72 - 117	2	30
Benzo[b]fluoranthene			1000	855		ug/Kg		85	63 - 132	4	30
Benzo[g,h,i]perylene			1000	837		ug/Kg		84	55 - 139	2	28
Benzo[k]fluoranthene			1000	781		ug/Kg		78	63 - 119	2	30
Chrysene			1000	970		ug/Kg		97	75 - 114	1	26
Dibenz(a,h)anthracene			1000	892		ug/Kg		89	56 - 134	2	30
Fluoranthene			1000	976		ug/Kg		98	73 - 125	0	30
Fluorene			1000	985		ug/Kg		98	70 - 121	5	30
Indeno[1,2,3-cd]pyrene			1000	824		ug/Kg		82	56 - 127	3	29
Naphthalene			1000	931		ug/Kg		93	62 - 112	2	26
Phenanthrene			1000	904		ug/Kg		90	73 - 106	3	28
Pyrene			1000	1000		ug/Kg		100	70 - 120	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Terphenyl-d14	*92*		*42 - 151*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-185019/1-A
Matrix: Solid
Analysis Batch: 185020

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 185019

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.910	J	4.0	0.50	mg/Kg		03/23/15 17:31	03/24/15 05:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*50 - 150*	*03/23/15 17:31*	*03/24/15 05:35*	*1*
Trifluorotoluene (Surr)	*107*		*50 - 150*	*03/23/15 17:31*	*03/24/15 05:35*	*1*

Lab Sample ID: LCS 580-185019/2-A
Matrix: Solid
Analysis Batch: 185020

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 185019

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline			40.0	33.5		mg/Kg		84	68 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*50 - 150*
Trifluorotoluene (Surr)	*105*		*50 - 150*

Lab Sample ID: LCSD 580-185019/3-A
Matrix: Solid
Analysis Batch: 185020

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 185019

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline			40.0	37.5		mg/Kg		94	68 - 120	11	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*50 - 150*
Trifluorotoluene (Surr)	*115*		*50 - 150*

Lab Sample ID: 580-48187-2 MS
Matrix: Solid
Analysis Batch: 185020

Client Sample ID: MH-11-DRUM
Prep Type: Total/NA
Prep Batch: 185019

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline	1.8	J B	35.8	22.9		mg/Kg	☼	59	50 - 150		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*50 - 150*
Trifluorotoluene (Surr)	*75*		*50 - 150*

Lab Sample ID: 580-48187-2 MSD
Matrix: Solid
Analysis Batch: 185020

Client Sample ID: MH-11-DRUM
Prep Type: Total/NA
Prep Batch: 185019

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.8	J B	35.1	23.1		mg/Kg	☼	61	50 - 150	1	35

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: 580-48187-2 MSD
Matrix: Solid
Analysis Batch: 185020

Client Sample ID: MH-11-DRUM
Prep Type: Total/NA
Prep Batch: 185019

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		50 - 150
Trifluorotoluene (Surr)	76		50 - 150

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 580-185251/1-A
Matrix: Solid
Analysis Batch: 185307

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 185251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.010	0.0032	mg/Kg		03/26/15 08:15	03/26/15 17:29	1
PCB-1221	ND		0.011	0.0080	mg/Kg		03/26/15 08:15	03/26/15 17:29	1
PCB-1232	ND		0.011	0.0070	mg/Kg		03/26/15 08:15	03/26/15 17:29	1
PCB-1242	ND		0.010	0.0021	mg/Kg		03/26/15 08:15	03/26/15 17:29	1
PCB-1248	ND		0.010	0.0030	mg/Kg		03/26/15 08:15	03/26/15 17:29	1
PCB-1254	ND		0.010	0.0021	mg/Kg		03/26/15 08:15	03/26/15 17:29	1
PCB-1260	ND		0.010	0.0030	mg/Kg		03/26/15 08:15	03/26/15 17:29	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	98		50 - 140	03/26/15 08:15	03/26/15 17:29	1
Tetrachloro-m-xylene	47		45 - 135	03/26/15 08:15	03/26/15 17:29	1

Lab Sample ID: LCS 580-185251/4-A
Matrix: Solid
Analysis Batch: 185307

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 185251

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1016			0.100	0.0652		mg/Kg		65	40 - 140		
PCB-1260			0.100	0.0869		mg/Kg		87	60 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	94		50 - 140
Tetrachloro-m-xylene	47		45 - 135

Lab Sample ID: LCSD 580-185251/5-A
Matrix: Solid
Analysis Batch: 185307

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 185251

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016			0.100	0.0672		mg/Kg		67	40 - 140	3	20
PCB-1260			0.100	0.0917		mg/Kg		92	60 - 130	5	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl	94		50 - 140
Tetrachloro-m-xylene	49		45 - 135

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: 580-48187-1 MS
Matrix: Solid
Analysis Batch: 185307

Client Sample ID: MH-11-OUT
Prep Type: Total/NA
Prep Batch: 185251

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	ND		0.207	0.184		mg/Kg	☼	89	40 - 140
PCB-1260	ND		0.207	0.179		mg/Kg	☼	86	60 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*82*		*50 - 140*
Tetrachloro-m-xylene	*80*		*45 - 135*

Lab Sample ID: 580-48187-1 MSD
Matrix: Solid
Analysis Batch: 185307

Client Sample ID: MH-11-OUT
Prep Type: Total/NA
Prep Batch: 185251

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016	ND		0.193	0.158		mg/Kg	☼	82	40 - 140	15	20
PCB-1260	ND		0.193	0.165		mg/Kg	☼	86	60 - 130	8	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl	*86*		*50 - 140*
Tetrachloro-m-xylene	*80*		*45 - 135*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-185099/1-A
Matrix: Solid
Analysis Batch: 185190

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 185099

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		25	3.6	mg/Kg		03/24/15 13:28	03/25/15 17:16	1
Motor Oil (>C24-C36)	ND		50	9.1	mg/Kg		03/24/15 13:28	03/25/15 17:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*89*		*50 - 150*	*03/24/15 13:28*	*03/25/15 17:16*	*1*

Lab Sample ID: LCS 580-185099/2-A
Matrix: Solid
Analysis Batch: 185190

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 185099

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	500	484		mg/Kg		97	70 - 125
Motor Oil (>C24-C36)	502	558		mg/Kg		111	64 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*95*		*50 - 150*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-185099/3-A
Matrix: Solid
Analysis Batch: 185190

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 185099

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			500	402	*	mg/Kg		80	70 - 125	19	16
Motor Oil (>C24-C36)			502	465	*	mg/Kg		93	64 - 127	18	17

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*81*		*50 - 150*

Lab Sample ID: 580-48187-1 DU
Matrix: Solid
Analysis Batch: 185190

Client Sample ID: MH-11-OUT
Prep Type: Total/NA
Prep Batch: 185099

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
#2 Diesel (C10-C24)	130	Y		165		mg/Kg	☼			28	35
Motor Oil (>C24-C36)	880	Y		1170		mg/Kg	☼			28	35

Surrogate	*DU %Recovery*	*DU Qualifier*	*Limits*
o-Terphenyl	*99*		*50 - 150*

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 580-185031/21-A
Matrix: Solid
Analysis Batch: 185137

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 185031

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.50	0.18	mg/Kg		03/23/15 18:21	03/24/15 15:45	10
Barium	ND		0.50	0.078	mg/Kg		03/23/15 18:21	03/24/15 15:45	10
Cadmium	ND		0.20	0.019	mg/Kg		03/23/15 18:21	03/24/15 15:45	10
Chromium	ND		0.50	0.063	mg/Kg		03/23/15 18:21	03/24/15 15:45	10
Copper	ND		0.40	0.098	mg/Kg		03/23/15 18:21	03/24/15 15:45	10
Lead	ND		0.50	0.048	mg/Kg		03/23/15 18:21	03/24/15 15:45	10
Silver	ND		0.20	0.012	mg/Kg		03/23/15 18:21	03/24/15 15:45	10
Zinc	ND		5.0	1.1	mg/Kg		03/23/15 18:21	03/24/15 15:45	10

Lab Sample ID: LCS 580-185031/22-A
Matrix: Solid
Analysis Batch: 185137

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 185031

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic			200	189		mg/Kg		95	80 - 120		
Barium			200	195		mg/Kg		98	80 - 120		
Cadmium			5.00	4.82		mg/Kg		96	80 - 120		
Chromium			20.0	19.3		mg/Kg		96	80 - 120		
Copper			25.0	22.9		mg/Kg		91	80 - 120		
Lead			50.0	47.3		mg/Kg		95	80 - 120		
Silver			30.0	31.4		mg/Kg		105	80 - 120		
Zinc			200	184		mg/Kg		92	80 - 120		

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-185031/23-A
Matrix: Solid
Analysis Batch: 185137

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 185031

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	200	188		mg/Kg		94	80 - 120	1	20
Barium	200	190		mg/Kg		95	80 - 120	2	20
Cadmium	5.00	4.64		mg/Kg		93	80 - 120	4	20
Chromium	20.0	18.7		mg/Kg		94	80 - 120	3	20
Copper	25.0	22.4		mg/Kg		90	80 - 120	2	20
Lead	50.0	45.9		mg/Kg		92	80 - 120	3	20
Silver	30.0	30.7		mg/Kg		102	80 - 120	2	20
Zinc	200	183		mg/Kg		92	80 - 120	0	20

Lab Chronicle

Client: URS Corporation
Project/Site: PGG/SCE

TestAmerica Job ID: 580-48187-1
SDG: Willbridge Terminal

Client Sample ID: MH-11-OUT

Lab Sample ID: 580-48187-1

Date Collected: 03/19/15 09:58
Matrix: Solid
Date Received: 03/19/15 14:30
Percent Solids: 48.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			185250	03/26/15 08:08	EKK	TAL SEA
Total/NA	Analysis	8270D		1	185300	03/26/15 18:25	AHP	TAL SEA
Total/NA	Prep	3550B			185250	03/26/15 08:08	EKK	TAL SEA
Total/NA	Analysis	8270D SIM		1	185261	03/26/15 18:51	AHP	TAL SEA
Total/NA	Prep	5030B			185019	03/23/15 17:31	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	185020	03/24/15 07:13	IWH	TAL SEA
Total/NA	Prep	3550B			185251	03/26/15 08:15	EKK	TAL SEA
Total/NA	Analysis	8082A		1	185307	03/26/15 18:18	EKK	TAL SEA
Total/NA	Prep	3546			185099	03/24/15 13:28	ERZ	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	185190	03/25/15 18:29	CGM	TAL SEA
Total/NA	Prep	3050B			185031	03/23/15 18:21	PAB	TAL SEA
Total/NA	Analysis	6020A		5	185137	03/24/15 16:32	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	185050	03/24/15 08:09	ERZ	TAL SEA

Client Sample ID: MH-11-DRUM

Lab Sample ID: 580-48187-2

Date Collected: 03/19/15 10:23
Matrix: Solid
Date Received: 03/19/15 14:30
Percent Solids: 53.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			185250	03/26/15 08:08	EKK	TAL SEA
Total/NA	Analysis	8270D		1	185300	03/26/15 17:35	AHP	TAL SEA
Total/NA	Prep	3550B			185250	03/26/15 08:08	EKK	TAL SEA
Total/NA	Analysis	8270D SIM		1	185261	03/26/15 19:13	AHP	TAL SEA
Total/NA	Prep	5030B			185019	03/23/15 17:31	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	185020	03/24/15 07:47	IWH	TAL SEA
Total/NA	Prep	3550B			185251	03/26/15 08:15	EKK	TAL SEA
Total/NA	Analysis	8082A		1	185307	03/26/15 19:08	EKK	TAL SEA
Total/NA	Prep	3546			185099	03/24/15 13:28	ERZ	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	185190	03/25/15 19:05	CGM	TAL SEA
Total/NA	Prep	3050B			185031	03/23/15 18:21	PAB	TAL SEA
Total/NA	Analysis	6020A		5	185137	03/24/15 16:36	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	185050	03/24/15 08:09	ERZ	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Certification Summary

Client: URS Corporation
Project/Site: PGG/SCE

TestAmerica Job ID: 580-48187-1
SDG: Willbridge Terminal

Laboratory: TestAmerica Seattle

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-022	03-02-16
California	State Program	9	2901	01-31-17
L-A-B	DoD ELAP		L2236	01-19-16
L-A-B	ISO/IEC 17025		L2236	01-19-16
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-06-15
US Fish & Wildlife	Federal		LE192332-0	02-28-16
USDA	Federal		P330-11-00222	04-08-17
Washington	State Program	10	C553	02-17-16

Laboratory: TestAmerica Portland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-012	12-26-15
California	State Program	9	2597	09-30-15
Oregon	NELAP	10	OR100021	01-09-16
USDA	Federal		P330-11-00092	04-17-17
Washington	State Program	10	C586	06-23-15

Sample Summary

Client: URS Corporation
Project/Site: PGG/SCE

TestAmerica Job ID: 580-48187-1
SDG: Willbridge Terminal

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-48187-1	MH-11-OUT	Solid	03/19/15 09:58	03/19/15 14:30
580-48187-2	MH-11-DRUM	Solid	03/19/15 10:23	03/19/15 14:30

TestAmerica Portland
3405 SW Nimbus Avenue
Beaverton, OR 97008
Phone: 503.906.9200 Fax:

Chain of Custody Record

0

580-48187 Chain of Custody

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Tom Bialobok	Site Contact: Gene Hallman	Date: 3/19/15	COC No: 1
Company Name: AECOM	Tel/Fax:	Lab Contact:	Carrier:	1 of 1 COCs
Address: 111 SW Columbia suite 1500	Analysis Turnaround Time			Sampler: G Hallman / M. Tauscher
City/State/Zip: Portland, OR	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 503-222-7200	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: PG&E / SCE	☐ 1 week			
Site: Willbridge Terminal	☐ 2 days			Job / SDG No.:
PO#	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)		NWTPH-Dx	NWTPH-GX	8270-SIM	PCB AROCLORS	6020 METALS										Sample Specific Notes:
MH-11-OUT	3/19	0958	G	S	3	N	N		X	X	X	+											
MH-11-DRUM	3/19	1023	G	S	3	N	N		X	X	X	+											

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

8270 SIM FOR PAH and PHTHALATES METALS - As, Cu, Cr, Ba, Cd, Pb, Ag, Zn 3.7 IR/P-L

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	AECOM	3/19/15 1430	[signature]	TAP	3/19/15 1430
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

3/30/2015

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 580-48187-1
SDG Number: Willbridge Terminal

Login Number: 48187
List Number: 1
Creator: Lehman, Clarissa A

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-51093-1
Client Project/Site: Phillips 66

For:
URS Corporation
111 SW Columbia Suite 1500
Portland, Oregon 97201-5814

Attn: Brian Pletcher

Authorized for release by:
7/7/2015 4:14:24 PM

Sarah Murphy, Project Manager I
(253)922-2310
sarah.murphy@testamericainc.com

Table of Contents

Case Narrative

Client: URS Corporation
Project/Site: Phillips 66

TestAmerica Job ID: 580-51093-1

Job ID: 580-51093-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative
580-51093-1

Receipt
The samples were received on 6/24/2015 3:06 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.8º C.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: URS Corporation
Project/Site: Phillips 66

TestAmerica Job ID: 580-51093-1

Qualifiers

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
F3	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: URS Corporation
Project/Site: Phillips 66

TestAmerica Job ID: 580-51093-1

Client Sample ID: MH-11-IN
Date Collected: 06/23/15 10:25
Date Received: 06/24/15 15:06

Lab Sample ID: 580-51093-1
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	65		0.10	0.10	%			07/01/15 19:17	1
Percent Moisture	35		0.10	0.10	%			07/01/15 19:17	1

Client Sample Results

Client: URS Corporation
Project/Site: Phillips 66

TestAmerica Job ID: 580-51093-1

Client Sample ID: MH-11-IN
Date Collected: 06/23/15 10:25
Date Received: 06/24/15 15:06

Lab Sample ID: 580-51093-1
Matrix: Solid
Percent Solids: 65.1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	93		0.34	0.053	mg/Kg	☼	07/01/15 15:50	07/02/15 09:52	5
Selenium	0.72		0.68	0.14	mg/Kg	☼	07/01/15 15:50	07/02/15 09:52	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.13	F1	0.025	0.0076	mg/Kg	☼	07/02/15 15:55	07/02/15 18:21	1

Client Sample Results

Client: URS Corporation
Project/Site: Phillips 66

TestAmerica Job ID: 580-51093-1

Client Sample ID: MH-11-OUT

Lab Sample ID: 580-51093-2

Date Collected: 06/23/15 10:30

Matrix: Solid

Date Received: 06/24/15 15:06

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	40		0.10	0.10	%			07/01/15 19:17	1
Percent Moisture	60		0.10	0.10	%			07/01/15 19:17	1

Client Sample Results

Client: URS Corporation
Project/Site: Phillips 66

TestAmerica Job ID: 580-51093-1

Client Sample ID: MH-11-OUT
Date Collected: 06/23/15 10:30
Date Received: 06/24/15 15:06

Lab Sample ID: 580-51093-2
Matrix: Solid
Percent Solids: 40.3

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	91		0.35	0.054	mg/Kg	☼	07/01/15 15:50	07/02/15 09:59	5
Selenium	1.1		0.70	0.14	mg/Kg	☼	07/01/15 15:50	07/02/15 09:59	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.051		0.035	0.010	mg/Kg	☼	07/02/15 15:55	07/02/15 18:30	1

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 580-193785/17-A
Matrix: Solid
Analysis Batch: 193908

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 193785

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.25	0.039	mg/Kg		07/01/15 15:50	07/02/15 07:48	5
Selenium	ND		0.50	0.10	mg/Kg		07/01/15 15:50	07/02/15 07:48	5

Lab Sample ID: LCS 580-193785/18-A
Matrix: Solid
Analysis Batch: 193908

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 193785

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	200	187		mg/Kg		94	80 - 120
Selenium	200	184		mg/Kg		92	80 - 120

Lab Sample ID: LCSD 580-193785/19-A
Matrix: Solid
Analysis Batch: 193908

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 193785

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Barium	200	188		mg/Kg		94	80 - 120	1	20
Selenium	200	181		mg/Kg		91	80 - 120	2	20

Lab Sample ID: LCSSRM 580-193785/20-A
Matrix: Solid
Analysis Batch: 193908

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 193785

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	203	188		mg/Kg		92.5	73.4 - 127.1
Selenium	177	156		mg/Kg		88.2	67.8 - 131.6

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 580-193921/16-A
Matrix: Solid
Analysis Batch: 194036

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 193921

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.020	0.0060	mg/Kg		07/02/15 15:55	07/02/15 18:14	1

Lab Sample ID: LCS 580-193921/17-A
Matrix: Solid
Analysis Batch: 194036

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 193921

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.167	0.158		mg/Kg		95	80 - 120

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: LCSD 580-193921/18-A
Matrix: Solid
Analysis Batch: 194036

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 193921

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury			0.167	0.153		mg/Kg		92	80 - 120	4	20

Lab Sample ID: 580-51093-1 MS
Matrix: Solid
Analysis Batch: 194036

Client Sample ID: MH-11-IN
Prep Type: Total/NA
Prep Batch: 193921

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	0.13	F1	0.203	0.285	F1	mg/Kg	☼	76	80 - 120		

Lab Sample ID: 580-51093-1 MSD
Matrix: Solid
Analysis Batch: 194036

Client Sample ID: MH-11-IN
Prep Type: Total/NA
Prep Batch: 193921

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.13	F1	0.209	0.283	F1	mg/Kg	☼	73	80 - 120	1	20

Lab Sample ID: 580-51093-1 DU
Matrix: Solid
Analysis Batch: 194036

Client Sample ID: MH-11-IN
Prep Type: Total/NA
Prep Batch: 193921

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Mercury	0.13	F1		0.0815	F3	mg/Kg	☼			47	20

Metals

Prep Batch: 193785

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-51093-1	MH-11-IN	Total/NA	Solid	3050B	
580-51093-2	MH-11-OUT	Total/NA	Solid	3050B	
LCS 580-193785/18-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 580-193785/19-A	Lab Control Sample Dup	Total/NA	Solid	3050B	
LCSSRM 580-193785/20-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 580-193785/17-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 193908

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-51093-1	MH-11-IN	Total/NA	Solid	6020A	193785
580-51093-2	MH-11-OUT	Total/NA	Solid	6020A	193785
LCS 580-193785/18-A	Lab Control Sample	Total/NA	Solid	6020A	193785
LCSD 580-193785/19-A	Lab Control Sample Dup	Total/NA	Solid	6020A	193785
LCSSRM 580-193785/20-A	Lab Control Sample	Total/NA	Solid	6020A	193785
MB 580-193785/17-A	Method Blank	Total/NA	Solid	6020A	193785

Prep Batch: 193921

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-51093-1	MH-11-IN	Total/NA	Solid	7471A	
580-51093-1 DU	MH-11-IN	Total/NA	Solid	7471A	
580-51093-1 MS	MH-11-IN	Total/NA	Solid	7471A	
580-51093-1 MSD	MH-11-IN	Total/NA	Solid	7471A	
580-51093-2	MH-11-OUT	Total/NA	Solid	7471A	
LCS 580-193921/17-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 580-193921/18-A	Lab Control Sample Dup	Total/NA	Solid	7471A	
MB 580-193921/16-A	Method Blank	Total/NA	Solid	7471A	

Analysis Batch: 194036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-51093-1	MH-11-IN	Total/NA	Solid	7471A	193921
580-51093-1 DU	MH-11-IN	Total/NA	Solid	7471A	193921
580-51093-1 MS	MH-11-IN	Total/NA	Solid	7471A	193921
580-51093-1 MSD	MH-11-IN	Total/NA	Solid	7471A	193921
580-51093-2	MH-11-OUT	Total/NA	Solid	7471A	193921
LCS 580-193921/17-A	Lab Control Sample	Total/NA	Solid	7471A	193921
LCSD 580-193921/18-A	Lab Control Sample Dup	Total/NA	Solid	7471A	193921
MB 580-193921/16-A	Method Blank	Total/NA	Solid	7471A	193921

General Chemistry

Analysis Batch: 193799

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-51093-1	MH-11-IN	Total/NA	Solid	D 2216	
580-51093-2	MH-11-OUT	Total/NA	Solid	D 2216	

Lab Chronicle

Client: URS Corporation
Project/Site: Phillips 66

TestAmerica Job ID: 580-51093-1

Client Sample ID: MH-11-IN
Date Collected: 06/23/15 10:25
Date Received: 06/24/15 15:06

Lab Sample ID: 580-51093-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	193799	07/01/15 19:17	PAB	TAL SEA

Client Sample ID: MH-11-IN
Date Collected: 06/23/15 10:25
Date Received: 06/24/15 15:06

Lab Sample ID: 580-51093-1
Matrix: Solid
Percent Solids: 65.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			193785	07/01/15 15:50	PAB	TAL SEA
Total/NA	Analysis	6020A		5	193908	07/02/15 09:52	FCW	TAL SEA
Total/NA	Prep	7471A			193921	07/02/15 15:55	PAB	TAL SEA
Total/NA	Analysis	7471A		1	194036	07/02/15 18:21	FCW	TAL SEA

Client Sample ID: MH-11-OUT
Date Collected: 06/23/15 10:30
Date Received: 06/24/15 15:06

Lab Sample ID: 580-51093-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	193799	07/01/15 19:17	PAB	TAL SEA

Client Sample ID: MH-11-OUT
Date Collected: 06/23/15 10:30
Date Received: 06/24/15 15:06

Lab Sample ID: 580-51093-2
Matrix: Solid
Percent Solids: 40.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			193785	07/01/15 15:50	PAB	TAL SEA
Total/NA	Analysis	6020A		5	193908	07/02/15 09:59	FCW	TAL SEA
Total/NA	Prep	7471A			193921	07/02/15 15:55	PAB	TAL SEA
Total/NA	Analysis	7471A		1	194036	07/02/15 18:30	FCW	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Certification Summary

Client: URS Corporation
Project/Site: Phillips 66

TestAmerica Job ID: 580-51093-1

Laboratory: TestAmerica Seattle

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-022	03-02-16
California	State Program	9	2901	01-31-17
L-A-B	DoD ELAP		L2236	01-19-16
L-A-B	ISO/IEC 17025		L2236	01-19-16
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-06-15
US Fish & Wildlife	Federal		LE192332-0	02-28-16
USDA	Federal		P330-11-00222	04-08-17
Washington	State Program	10	C553	02-17-16

Sample Summary

Client: URS Corporation
Project/Site: Phillips 66

TestAmerica Job ID: 580-51093-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-51093-1	MH-11-IN	Solid	06/23/15 10:25	06/24/15 15:06
580-51093-2	MH-11-OUT	Solid	06/23/15 10:30	06/24/15 15:06

TestAmerica Portland
9405 SW Nimbus Avenue

Beaverton, OR 97008
phone 503.906.9200 fax

Chain of Custody Record

580-51093 Chain of Custody

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Brian Pletcher	Site Contact: Gene Hollman	Date: 6/23/2015
AECOM	Tel/Fax: 503-243-3120	Lab Contact: Sarah Murphy	Carrier:
111 SW Columbia St. STE 1500	**Analysis Turnaround Time**		___1___ of ___1___ COCs
Portland, OR 97201	☐ CALENDAR DAYS ☐ WORKING DAYS		Sampler: GRH
(503) 222-7200 Phone	TAT if different from Below __Standard__		**For Lab Use Only:**
(xxx) xxx-xxxx FAX	☐ 2 weeks		Walk-in Client:
Project Name: Phillips 66	☐ 1 week		Lab Sampling:
Site:	☐ 2 days		Job / SDG No.:
P O # 60285571	☐ 1 day		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Metals: Ba, Hg, Se	Sample Specific Notes:
MH-11-IN	6/23/15	10:25	G	S	2	N	N	X	
MH-11-OUT	6/23/15	10:30	G	S	2	N	N	X	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

MDL Report. Use Metals methods to best meet the following detection limits: Ba: No JSCS Limit; Hg: 0.070 mg/kg; Se: 2 mg/kg 1.8 MR/GZ ~~Use Sample~~ Sample Volume Provided in 2 jars each

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	AECOM	6/23/15 @ 18:40	[signature]	TAP	6/24/15 1506
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

7/7/2015

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 580-51093-1

Login Number: 51093
List Number: 1
Creator: Gonzales, Steve

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

ATTACHMENT C

Data Quality Review Report

Data Quality Review Report

This data quality review assesses the laboratory results for the sediment samples collected in support of the *Phillips 66 Source Control Evaluation Sediment Sampling Work Plan* (AECOM, 2014). Two sediment samples were collected on June 23rd, 2015. Samples were submitted to TestAmerica (TA) of Seattle, Washington and analyzed for total barium and selenium by Environmental Protection Agency (EPA) Method 6020A and total mercury by EPA Method 7471A. The results were reported on a dry weight basis.

The sediment sample results are reported in TA work order J51093. The analytical results for all samples were reviewed using guidance from the EPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (EPA, 2014), and laboratory quality control (QC) criteria (as applicable for each analytical method used). The following items and data quality indicators were reviewed:

Representativeness

- Chain of Custody (COC) records
- Case Narrative
- Proper sample collection and handling procedures
- Holding times
- Method / Laboratory blank analysis

Accuracy

- Laboratory Control Spike (LCS) recoveries
- Matrix Spike (MS) recoveries

Precision

- Laboratory duplicate (laboratory duplicate, matrix spike duplicate [MSD], or LCS duplicate [LCSD]) precision

Comparability

- Compound Identification
- Method detection limit (MDL) and method reporting limits (MRL)

Completeness

- Data completeness and format

A summary of qualifiers assigned to results in this investigation is included in Table 1. Qualifiers applied to the data as a result of the review were limited to:

U The analyte was not detected above the MDL. The reported non-detect concentration is the MDL.

J The reported value is an estimated concentration. An example would be that the reported detection was above the MDL but below the MRL.

UJ The analyte was not detected above the MDL. However, the reported concentration is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified. No associated value is reported.

DNR Do Not Report. Multiple results from different analytical dates and/or dilutions. Value from another analysis should be used.

REPRESENTATIVENESS

Chain-of-Custody and Holding Times

The COC forms indicate that samples were maintained under COC and forms were signed upon release and receipt. The temperature of the coolers received were within the EPA-recommended limits of ≤ 6 degrees Celsius.

All project samples were analyzed within technical hold times.

Case Narrative

All items discussed in the TA case narrative are discussed in the following sections.

Review of Blanks

Method Blanks

Method blanks were used to check for laboratory contamination and instrument bias. The laboratory analyzed at least one method blank for each analysis and for each batch, per method requirements. Target analytes were not reported as detected in the associated method blanks.

ACCURACY

Laboratory Control Samples/Laboratory Control Sample Duplicates

LCS/LCSD analyses are used to monitor the laboratory's day-to-day performance of routine analytical methods, independent of matrix effects and to assess accuracy for the target compounds. The laboratory analyzed at least one LCS or LCS/LCSD for each applicable analysis and for each batch per method requirements. All LCS/LCSD percent recoveries met laboratory acceptance criteria.

Matrix Spike/Matrix Spike Duplicates

MS/MSD samples are analyzed to assess the ability of the laboratory to recover the target compounds from the sample matrix, as well as to measure accuracy of the analysis. As applicable, qualifiers have been applied to only the parent sample when the recoveries were outside the laboratory acceptance limits and the associated LCS was in control. All other MS/MSD recoveries were acceptable with the following exceptions:

Parent Sample ID (Laboratory ID)	Analyte	MS/MSD %Recovery (Laboratory Limits)	Qualification
MH-11-IN (580-51093-1)	Mercury	76/73 (80-120)	The LCS was in control indicating the batch was acceptable. The parent sample result was qualified as estimated and flagged 'J'.

PRECISION

Laboratory Duplicate

TA performed a laboratory duplicate on all batches in accordance to the method criteria. With the exceptions listed below; laboratory precision was acceptable for all duplicates performed. The relative percent difference (RPD) for sediment sample laboratory duplicate was calculated when sample results were greater than five times (5x) the MRL and compared to laboratory control limits.

Parent Sample ID (Laboratory ID)	Analyte	%RPD (Laboratory Limit = 20)	Qualification
MH-11-IN (580-51093-1)	Mercury	47	None. The parent sample was previously qualified as estimated for MS recovery.

COMPARABILITY

Reporting Limits

The sensitivity (i.e., reporting limits) of the analytical methods is driven by the project specific objectives. The reporting limits met the project objectives.

COMPLETENESS

Completeness is defined as the percentage of usable data out of the total amount of data generated. Some data were qualified as estimated and flagged 'J'. A summary of assigned qualifiers can be found in Table 1. Completeness for the sediment samples is 100%.

REFERENCES

AECOM, 2014. Phillips 66 Source Control Evaluation, Sediment Sampling Work Plan. October 16.

EPA, 2014. *EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*. August.

Table 1. Sample Qualification Summary

Sample Number	TA Laboratory Identification	Analyte	Data Qualifier	Reason for Qualification
MH-11-IN	(580-51093-1)	Mercury	J	MS recovery

ATTACHMENT D

APS Inspection Logs and Video Survey CD

Applied Professional Services
43530 SE North Bend Way
North Bend, WA 98045
Toll Free (866)-869-3153

Observations by Inspections

SITE DATA

Mainline ID:	City:	Address:
AECOM2	Portland	5528 NW Doane Ave

Upstream node:	Downstream node:	Pipe type:	Pipe shape:	Pipe height:	Pipe width:
MH 9	MH 11	Not Known	Circular	8	

INSPECTION DATA

	Scheduled date:	Start date/time:	End date/time:
	6/23/2015 11:11:20 AM	6/23/2015 11:11:43 AM	6/23/2015 11:14:11 AM

Surveyed footage:	Status:	Operator:	Work order no.:
4.7	Stopped	Dan Wright	

Reason:	Weather:	Condition:
Assessment	Dry	Satisfactory

Comments

OBSERVATIONS

Footage	Rev.	Length	Clock From	Clock To	Code	Modifiers/Severity	Rating
2.0	No				START WITH FLOW		
4.7	No				Catch Basin		
4.7	No				STOP		

Applied Professional Services
43530 SE North Bend Way
North Bend, WA 98045
Toll Free (866)-869-3153

Observations by Inspections

SITE DATA

Mainline ID:	City:	Address:
AECOM3	Portland	5528 NW Doane Ave

Upstream node:	Downstream node:	Pipe type:	Pipe shape:	Pipe height:	Pipe width:
Final Box 2	MH 9	Steel	Circular	8	

INSPECTION DATA

	Scheduled date:	Start date/time:	End date/time:
	6/23/2015 11:18:09 AM	6/23/2015 11:19:48 AM	6/23/2015 12:36:27 PM

Surveyed footage:	Status:	Operator:	Work order no.:
197.5	Stopped	Dan Wright	

Reason:	Weather:	Condition:
Assessment	Dry	Satisfactory

Comments

OBSERVATIONS

Footage	Rev.	Length	Clock From	Clock To	Code	Modifiers/Severity	Rating
3.0	Yes				START AGAINST FLOW		
47.8	Yes				Crack	Multiple - Narrow	
56.0	Yes				Crack	Multiple - Narrow	
56.1	Yes				Infiltration		
58.0	Yes				Crack	Spiral - Narrow	
79.7	Yes				Crack	Multiple - Narrow	
83.0	Yes				Crack	Circular - Narrow	
96.3	Yes				Crack	Multiple - Narrow	
96.3	Yes				Infiltration		
107.2	Yes				Crack	Multiple - Narrow	
112.0	Yes				Crack	Multiple - Narrow	
128.0	Yes				Crack	Multiple - Narrow	
132.3	Yes				Crack	Multiple - Narrow	

Applied Professional Services
43530 SE North Bend Way
North Bend, WA 98045
Toll Free (866)-869-3153

OBSERVATIONS

Footage	Rev.	Length	Clock From	Clock To	Code	Modifiers/Severity	Rating
132.3	Yes				Joint Offset	Small	
140.5	Yes				Crack	Multiple - Wider	
140.5	Yes				Joint Offset		
177.7	Yes				Crack	Multiple - Wider	
194.0	Yes				STOP		
197.5	Yes				Abandoned Survey		

Applied Professional Services
43530 SE North Bend Way
North Bend, WA 98045
Toll Free (866)-869-3153

Observations by Inspections

SITE DATA

Mainline ID:	City:	Address:
AECOM1	Portland	5528 NW Doane Ave

Upstream node:	Downstream node:	Pipe type:	Pipe shape:	Pipe height:	Pipe width:
C/O	MH 11	Steel	Circular	12	

INSPECTION DATA

	Scheduled date:	Start date/time:	End date/time:
	6/23/2015 10:43:08 AM	6/23/2015 10:43:51 AM	6/23/2015 10:50:23 AM

Surveyed footage:	Status:	Operator:	Work order no.:
15.6	Stopped	Dan Wright	

Reason:	Weather:	Condition:
Assessment	Dry	Satisfactory

Comments

OBSERVATIONS

Footage	Rev.	Length	Clock From	Clock To	Code	Modifiers/Severity	Rating
6.0	Yes				START AGAINST FLOW		
15.6	Yes				Debris	>30%	
15.6	Yes				Abandoned Survey		
15.6	Yes				STOP		